AGE DIFFERENCES IN THE CORRESPONDENCE BIAS:

AN EXAMINATION OF THE INFLUENCE OF PERSONAL BELIEF

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AGE DIFFERENCES IN THE CORRESPONDENCE BIAS:

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SUMMARY

Work by Blanchard-Fields has consistently found that older adults are prone to making dispositional inferences in certain contexts (Blanchard-Fields, 1994; 1996; 1999); however mechanisms underlying these tendencies have yet to be explored. The present study assessed the influence that personal belief has on attitude attributions made by both young and older adults. Using the attitude-attribution paradigm, participants made judgments about a target's actual attitude based on an essay that was written by the target. The essay contained a position on a controversial social issue, i.e. prayer in public school, that the target was instructed to advocate. Replicating past research, older adults rated the target's attitude to be more strongly consistent with the content of the essay than young adults did. Personal beliefs did not have a large effect on attitude attributions, however age and belief related differences appeared in both confidence ratings and as a function of attributional complexity. Fluid reasoning was also found to have an impact on attributions.

CHAPTER 1

INTRODUCTION

Suppose you are introduced to a person at a conference. You hold a short conversation with her, during the course of which she discusses reasons for being in favor of prescribing drugs to children with behavioral problems rather than prescribing behavioral therapy. Later, you are told that the woman you were introduced to works at a pharmaceutical company and that her boss was within earshot of your conversation. Would you be able to state with certainty the woman's true attitude about the best way to deal with children with behavioral problems? How will your own belief about the topic influence your judgment of her attitude?

Numerous social psychological studies have consistently found that people make incorrect judgments when given this type of scenario (see Gilbert & Malone, 1995 for a review). People have a strong tendency to overestimate internal factors, such as actual belief, and underestimate the external factors, in this example the presence of the woman's boss, driving another person's behavior. This tendency is known in the literature as the correspondence bias. This phenomenon was first documented by Jones and Harris (1967) and has since been replicated in many studies (Blanchard-Fields & Horhota, submitted; Choi & Nisbett, 1998; Follett & Hess, 2002; Gilbert, Pelham & Krull, 1988).

Past studies have focused almost exclusively on examining the correspondence bias in younger adults. Studies on this phenomenon using attitude attribution paradigms in older adults are scarce by comparison (Blanchard-Fields & Horhota, submitted; Follett & Hess, 2002). In several studies using different methodologies, Blanchard-Fields and colleagues

have shown that older adults are more susceptible to dispositional biases than younger adults across a variety of contexts (Blanchard-Fields, 1994; Blanchard-Fields & Beatty, in press; Blanchard-Fields, Chen, Schocke, & Hertzog, 1998). These findings lead to some interesting research questions: Why are older adults more prone to inferring dispositional attributions? What are the mechanisms driving this bias and how do the mechanisms operate across age groups?

There are two types of hypotheses regarding the processes explaining age-differences in attributional biases: the role of limited cognitive capacity and the role of social/motivational factors. The cognitive hypothesis suggests that older adults have limited cognitive resources with which to make social judgments. According to Gilbert, Pelham and Krull (1988) there are three stages in making social judgments: categorization, characterization and correction. First, an observer categorizes the behavior, e.g. smiling is a nice behavior. Second, an observer characterizes the actor, e.g. the smiling person is very nice. Finally, an observer corrects the characterization by taking situational factors into account, e.g. the person is a campaigning politician and therefore might be smiling in order to appear very nice. A premise of this approach is that the correction stage requires cognitive effort to adjust the initial dispositional inference for the situational constraints. Based on this theory older adults can be expected to make more extreme dispositional attributions because they have limited cognitive resources with which to sufficiently adjust their initial characterization during the correction stage. Thus, an older observer will complete the categorization and characterization stages, but may not have the capacity to correct their initial dispositional attribution by taking situational factors into account when forming a social judgment.

In contrast, a social/motivational position assumes that young and older adults have different experiences that lead them to have different views on the situations in which they make attributions. From this perspective, the attributional biases that emerge between younger and older adult samples of a population may be due to age-related differences in attitudes and values (Blanchard-Fields, 1999; Blanchard-Fields & Hertzog, 2000). These value differences may be due in part to the social era in which each group was raised, i.e. a cohort effect. Alternatively, differences in dispositional attributions could reflect the fact that older adults may have accumulated more experience and may be basing their judgments on events from their own past, e.g. recalling similar situations that typically reflected an actor's disposition. Further, it has been argued that as people age, older adults may hold narrower or stronger beliefs about certain issues than young adults, preferring more structure and less ambiguity (Hess, 2001). If older adults become more entrenched in their beliefs it is possible that they will be more likely to hold a target accountable if that belief is violated (Blanchard-Fields & Hertzog, 2000). This may lead older adults to make more biased dispositional attributions than young adults.

The present study focuses on a social mechanism, specifically addressing the influence of personal belief. It has been suggested that individuals with strong beliefs, irrespective of age, will show an increase in biased attributions of blame when a personal belief is violated (Blanchard-Fields, 1999; Blanchard-Fields & Hertzog, 2000). It is thought that strong beliefs when violated would also have an impact on other types of attributions, including attitude attributions. Alternatively, some social psychological research suggests that when an individual's personal belief is violated, the individual may become more

motivated to examine the arguments that are incongruent with his or her own beliefs leading to a reduction in the extremity of dispositional attributions (Devine, 1989).

Past research on dispositional tendencies has not adequately addressed the influence of beliefs (e.g. Choi & Nisbett, 1998; Jones & Harris, 1967; Webster, 1993). In particular, the influence that beliefs have on social judgments across the lifespan has not been extensively explored. The present work aims to look at the effect of beliefs on social judgments using an adaptation of the Jones and Harris attitude-attribution paradigm. Before discussing the adult developmental approach of this study, an overview of the correspondence bias research and the attribution literature across the lifespan is necessary.

The Correspondence Bias

In a classic experiment, Jones and Harris (1967) developed the attitude-attribution paradigm. They tested the influence of freedom of choice on attitude attributions of a fictitious target's attitude. Participants read a short essay that was either pro- or anti-Castro and indicated the essay writer's true opinion. Participants were told that the essay was written either by choice or as an assignment. Under choice conditions, attribution ratings were highly correspondent, i.e. participants assumed that the position advocated in the essay corresponded with the writer's true attitude. However, this finding was also observed in the no-choice condition. Even when it was clear that the author of the essay was writing an assigned position, participants still rated the author's own opinion as consistent with the arguments of the essay. This unexpected effect was replicated in two additional studies in the Jones and Harris (1967) paper and the phenomenon was labeled the correspondence bias.

Potential influences on the correspondence bias

Several mechanisms to account for this phenomenon have been proposed since the initial findings were reported. Two mechanisms have received the most attention: lack of awareness and incomplete corrections. The first, lack of awareness, has been researched extensively in young adults (Choi & Nisbett, 1998; Jones & Harris, 1967; Trope & Gaunt, 2000) and to a lesser extent in older adults (Blanchard-Fields & Horhota, submitted). Lack of awareness implies that the observer must be aware of the situational influence on the behavior. Although manipulating the salience of the constraint has been found to influence young adults' attributions in the attitude-attribution paradigm, this is not the case with older adults (Blanchard-Fields & Horhota, submitted). Simply emphasizing the constraint instructions did not encourage older adults to use the situational information when making their judgments. When the motives underlying the behavior were made plausible, by presenting the essay task in the context of a class assignment, the attitude attribution ratings were equal for young and older adults. This finding suggests that motivational factors contribute to older adults' attributional processing.

The second mechanism that has received the attention of social psychology researchers is the incomplete correction of an initial dispositional inference. As mentioned previously, the correction phase requires cognitive capacity, i.e. participants must have resources available to correct their initial attribution. Gilbert, Pelham and Krull (1988) found that younger adults who completed another task simultaneously with the attribution task (the cognitive load condition) were more dispositionally biased than those participants who only completed the attribution task (no cognitive load). A cognitive deficit mechanism is a potential account for dispositional tendencies in older adults, however, given the findings of

context specificity in the attributional biases that older adults make, it seems unlikely that cognitive mechanisms are the only process affecting their attributional reasoning.

Particularly relevant to this paper is the work in the social psychology literature on the influence of personal beliefs and motivation on attributions. Within the general social psychological literature there is extensive evidence supporting the contribution of one's own belief to inferences about other's behaviors (Lord, Scott, Pugh, & Desforges, 1997; Trope, Cohen & Maoz, 1988; Webster, 1993). Several correspondence bias studies have examined the influence of different beliefs with varying results (e.g. Choi & Nisbett, 1998; Devine, 1989; Lord et al., 1997; Reeder, Fletcher & Furman, 1989). Some studies have failed to account for differences between attitude attributions in different experimental conditions (e.g., Choi & Nisbett, 1998; Jones & Harris, 1967; Webster, 1993), whereas others find beliefs are relevant to differences in attitude attributions (Alicke, Zerbst & LoSchiavo, 1996; Lord et al., 1997; Devine, 1989).

Individuals' beliefs about the relationship between attitude and behavior, and the motivation to make such judgments, seem to relate to ratings in the attitude attribution paradigm (Lord et al., 1997; Reeder, Fletcher and Furman, 1989; Van Boven, Kanada & Gilovich, 1999). However, fewer studies have examined the influence that personal beliefs about the issues in the study may have on the attributions made (e.g. Devine, 1989).

Devine (1989) argues that personal beliefs are related to participants' motivation for processing information. She incorporated personal belief into a correspondence bias paradigm by varying the position advocated in the essay to be normative or non-normative, i.e. allowing federal funding of AIDS research (a commonly held belief) versus not allowing federal funding of such research (a less commonly held belief). Most correspondence bias

paradigms use issues that, while controversial, have an evenly split distribution of people who are favorable and opposed to the topic, such as capital punishment. Devine argued that participants who were presented with an essay advocating a non-normative position were more motivated to carefully process of the essay task.

To measure the correspondence bias, Devine used both attitude attributions as well as measures of confidence in making the attitude judgment. Miller, Schmidt, Meyer & Colella (1984) suggested that part of the correspondence bias findings in attitude attribution ratings may be due to demand characteristics of the rating scale. Participants may not report ratings in the midrange of the attitude attribution scale as that would reflect an inability to make a judgment when asked. Confidence ratings, on the other hand, are specifically asking for information about uncertainty in the judgment and therefore may have less of a demand characteristic, i.e. the full range of values on the scale appear to be valid responses. Devine (1989) suggested that the confidence ratings act as a better measure of the strength of conviction in the judgment.

Devine's (1989) study found that in the attitude attribution ratings, participants showed the correspondence bias, rating the writer's beliefs to be in line with the essay content even in the no-choice condition. However, ratings of participant confidence showed a different pattern. In the no-choice condition, participants were less confident in their estimates of the writer's attitude in the non-normative (opposed) than they were in the normative (favorable) condition. The effects that Devine found were moderated by level of attributional complexity. Attributional complexity is an individual difference variable that assesses the degree to which a person prefers complex explanations for behavior. Participants who were low in attributional complexity showed no difference in their

confidence ratings across conditions, whereas participants who were high in attributional complexity were less confident in the non-normative condition. This study suggested that personal belief and motivation are intertwined and have an effect on judgments of participant confidence in the attitude-attribution paradigm.

While several correspondence bias papers report that the participants' personal beliefs are not significant covariates (e.g. Choi & Nisbett, 1998), some studies have found that such a relationship exists when participants view the attitude of a target to be similar to their own (e.g. Alicke et al., 1996). The lack of a consistent relationship between belief and correspondent attributions may be the result of several factors. The studies that find no relationship between beliefs and attitude ratings are predominantly based on a correlation between a single-item response and the rating scale of target attitude (e.g. Choi & Nisbett, 1998; Webster, 1993). This method may be problematic because the issues used in attitude attribution paradigms are multifaceted controversial social issues. A single item scale might not be an adequate measure to convey the complexity of participants' beliefs on these topics. Further, these studies have evaluated participant attitudes after the participant has completed the attitude attribution task (e.g. Choi & Nisbett, 1998; Jones & Harris, 1967; Lord et al., 1997; Webster, 1993). Therefore there exists the potential for reactive effects, i.e. participants may have adjusted their own position after reading the essay.

Dispositional biases across the lifespan

The majority of the research described thus far has been conducted on younger adult participants, however there is a growing literature examining attributional biases in older adults. Using different paradigms, age-related differences in social judgment biases have been found in the context of causal attributions (Blanchard-Fields, 1994; Blanchard-Fields &

Beatty, in press; Blanchard-Fields, Chen, Schocke, & Hertzog, 1998). This work consistently shows that in comparison to young adults, older adults are more likely to attribute the cause of relationship conflicts to dispositional characteristics of a primary character (e.g., selfishness.) and appear to ignore the contributions of external circumstances (e.g., family pressure).

To date, only two studies have investigated age-differences in the correspondence bias. Follett and Hess (2002) examined the correspondence bias in older adults using a choice/no-choice person perception paradigm. Participants watched two videotaped recordings of people responding to a series of questions. In one condition the responder chose the response from a list of options and in a second condition the responder was told which response to read from the list of options. Follett and Hess (2002) found that young and older adults rated the responder's belief to be in the direction of the arguments he presented regardless of whether he chose to read them or was instructed to read them. Follett and Hess also showed that attributional complexity related to attitude attributions, with higher attributional complexity relating to lower dispositional biases for all age groups.

Using the attitude attribution paradigm, Blanchard-Fields and Horhota (submitted) found that older adults were more likely to rate the target's attitude to be in the direction of the essay in the no-choice condition than were young adults; indicating that the correspondence bias was stronger in the older participants than in young adults. Further, older adults were more confident in their ratings than were younger adults.

Age, beliefs and dispositional attributions

As alluded to above, several studies provide evidence for a social motivational explanation underlying the reported age-differences in attributions. The early Blanchard-

Fields (1994) finding that age-related differences in dispositional attributions only occurred in negative relationship situations suggests that a cognitive mechanism is not the sole mechanism underlying dispositional biases. Older adults appear to have the capacity to engage in processing in some situations whereas in other contexts it appears that they choose not to use elaborative processing. This suggestion was bolstered by the findings of Chen and Blanchard-Fields (1997) who found that older adults who made quick attributional judgments produced more dispositional attributions than did young adults, however when given additional time to process the information, older adults made lower dispositional ratings. Further, that study found that personal beliefs mediated the relationship between age and dispositional attributions for some vignettes.

Individuals differ in the extent to which a given situation will trigger different social beliefs (Blanchard-Fields & Norris, 1994). Blanchard-Fields and Hertzog (2002) proposed that if one's social beliefs are violated then one would tend to attribute the cause of the outcome to a dispositional characteristic of the actor involved. Blanchard-Fields and Hertzog (2002) found that age differences in schematic beliefs predicted dispositional attributions in vignettes where these beliefs were a relevant theme. These differences in schematic beliefs mediated the age effect in family vignettes however schematic beliefs did not mediate the age effect in vignettes dealing with romantic relationships. Therefore this study gave partial support for the influence of beliefs on attributions.

It is also possible that older and younger adults have different levels of belief on the issues used in the paradigm. At an individual level, participants may vary widely on personal belief. As a whole, however, young adults may react less strongly about some social issues when compared to older adults. This could explain the lack of a relationship between

attributions and personal belief in past research because these studies have solely focused on young adult participants. If older adults are more schematic than younger adults in the content area in question, attitudes about the issue may be an important factor in explaining older adults' susceptibility to the correspondence bias.

The Present Study

The goal of this study was to examine the effect of personal belief on attributions in a more systematic way than could be found in the literature to date. More specifically, we investigated age-related differences in attitude attributions about a target when one's personal beliefs were consistent with, or inconsistent with, the content of the target essay using a paradigm similar to that used by Devine (1989). In the aging literature, work by Hess, Follett and McGee (1998) suggests that inconsistent information is encoded by older adults better than consistent information. Therefore, participants may encode the situational information more strongly and use it in making their attribution ratings in the inconsistent condition more than the consistent condition.

This study also asked how general beliefs and values may relate to the social issues presented and the attributions made by participants. Past work by Blanchard-Fields and Hertzog (2002) suggests a relationship between the general belief styles of traditionalism, value orthodoxy and need for closure with dispositional attributions in relationship vignettes. In addition, the work by Devine (1989) and Follett and Hess (2002) showed that attributional complexity may impact the extremity of the correspondence bias. These measures were included in the present study to further explore their relationship with the attributional judgments made by young and older adults.

The study applied an extreme age groups design, with young and older adults participating only, rather than a full-sized individual differences study. This decision was made primarily because age-differences in dispositional attributions in previous studies were found to exist between younger and older adults. Second, this study tries to show the differential effect of beliefs on older versus younger adults and acts as a preliminary study in an ongoing program of research. Only individuals who were extreme in their specific beliefs toward the content of the essays were recruited for this project. This decision was based on the notion that the best initial test of the effect would be to examine individuals with the most extreme beliefs, i.e., those individuals who would be more likely to be influenced by their beliefs when judging a target's attitude.

CHAPTER 2

HYPOTHESES

Hypothesis 1: This study will replicate previous work (Blanchard-Fields & Horhota, submitted, Mienaltowski, 2004) and find age-differences in the extremity of the correspondence bias and confidence ratings. Older adults will make ratings that are more correspondent with the essay content than will young adults. Older adults will also show higher confidence ratings than will young adults.

Hypothesis 2: Specific personal beliefs are expected to impact the attitude attribution ratings as well as the confidence ratings, in both young and older adults. When participant belief is congruent with the essay the individual will be more likely to commit the correspondence bias. Conversely, when specific beliefs are contradicted in the essay, participants are expected to commit the correspondence bias less.

Hypothesis 3: Beliefs will be predictive of the correspondence bias over and above the effect of age. Based on past work from Blanchard-Fields and colleagues, it is expected that the personal beliefs held by individuals will be highly correlated with the attributions they make. We expect that these beliefs will account for more variance in these ratings, over and above the influence of age.

Exploratory Hypothesis 1: Participants who believe that prayer should be allowed in schools (i.e. the more traditional view) will be more likely to commit the correspondence bias when their personal belief is contradicted in the essay than would participants with less traditional beliefs when confronted with contradictory beliefs in the essay. When participant

belief is consistent with the essay content both groups, traditional and less traditional, will be equally likely to produce dispositional ratings. The topic used in this study is the issue of prayer in public schools (for reasons discussed below in the method section). This issue is highly related to levels of traditionalism, a factor which has previously been shown to relate to attributions (Blanchard-Fields & Hertzog, 2002).

Exploratory Hypothesis 2: Measures of individual differences in general beliefs, motivation in the attribution task and cognitive measures were included to test their relation with attribution and confidence ratings. These measures have not been tested before in the attitude attribution paradigm with older adults, therefore there are no directional predictions.

CHAPTER 3

METHOD

Overview

In the first session, participants were mailed a questionnaire battery to complete at home. This battery contained several self-report measures of specific and general beliefs. After completing the measures and returning them to the lab, participants who held the most extreme specific beliefs about the topic of interest, prayer in public school, were asked to participate in an "unrelated" study on attributional reasoning.

The second session was a 2 (age: young, older) X 2 (congruence: congruent belief, incongruent belief) X 2 (essay: favorable, unfavorable) between subjects design. The numbers of participants in each condition are reported in Table D1. In the second session of the study, participants completed the attitude-attribution paradigm task of reading an essay and filling out an essay questionnaire. Half of the participants received an essay that was congruent with his or her own specific beliefs while the other half of participants received an essay that was incongruent with his or her own specific beliefs.

Pilot Studies: Development of the Personal Belief Measure

As the literature has focused solely on young adult participants, extensive pilot testing was necessary to ensure that the materials we planned to use were not differentially relevant to different age groups on a variety of dimensions. This pilot testing was preliminary work for a series of studies, therefore middle-aged adults were also included. Sixty-two young adults (aged, 18-31), 52 middle aged adults (aged 35-60) and 52 older adults (aged 60-75) participated in the first phase of pilot testing. In this phase, participants gave their opinions on a set of controversial topics. This pilot allowed us to examine the list of potential topics

to find topics with a range of favorable and unfavorable opinions. Based on the results of this pilot we found that the topic of allowing prayer in public schools had a wide distribution, however more important for this study, the topic had a large portion of participants indicating their beliefs at the extreme ends of the scale. Across the entire sample, 22% of participants indicated that they were not at all favorable of the idea of prayer in school whereas 32.8% indicated that they were extremely favorable of the idea. For the present study this distribution was ideal as this is a topic where over 50% of our pilot sample tended to hold extreme beliefs.

Six to eight items were created for each of eight controversial topics. Items were designed to reflect several dimensions of each topic; the dimensions were based on information from several polling websites, including the Gallup poll (Princeton: NJ). The 64-items in the scale were phrased both positively and negatively and the topics were intermixed throughout the questionnaire. Participants indicated their agreement or disagreement to several statements using 7-point Likert scales. Embedded within these topics were questions about prayer in schools, the topic of interest in the main study.

A pilot study was conducted on this new scale to determine which items should be used in the final scale and to determine the cutoff values to be used as the definition for extreme beliefs in our participants. Nineteen young adults (aged 18–27, $\underline{M}$ = 21.95, $\underline{SD}$ = 2.16), 15 middle-aged adults (aged 37-58, $\underline{M}$ = 51.08, $\underline{SD}$ = 5.02) and 23 older adults (aged 60-78, $\underline{M}$ = 68.60, $\underline{SD}$ = 5.77) participated in this pilot study. As in the previous pilot study, middle-aged adults were included in this sample to test other aspects of the scale for additional studies in this program of research. The sample was 60.3% Female, and 70.7% Caucasian, 20.7% African American and 5.2% Asian in ethnic background. There were no

age differences in self-reported overall health. Young adult participants were recruited from a pool of undergraduate psychology students and middle-aged and older adult participants were recruited from an older adult subject pool. Young adults received one hour of extra credit for a psychology course requirement and middle-aged and older adults received $10 for their participation. Participants either received the questionnaire as a mail-out to their home or completed the questionnaire in our campus laboratory.

The initial prayer scale consisted of eight items on prayer in public schools. The internal consistency (Cronbach's α) of this first scale was assessed and revealed that two items decreased the internal consistency of the scale. After removing these two items, the six-item prayer scale showed a Cronbach's $\alpha = .77$. The scale items are included in Appendix A. The total scale scores ranged from 6 to 42. The distribution of the responses to the six-item scale was examined to determine the cutoff values for the upper and lower 20% of responses. This showed that participants scoring 18 or lower on the scale would be considered extremely unfavorable toward the issue of prayer in school, and those scoring higher than 32 on the scale would be considered extremely favorable toward the issue. These cutoff values were used to select participants from the first session to return for the second session that included the attitude attribution task.

Session One – Identifying participants with strong personal beliefs

The main purpose of the first session was to identify participants with strong beliefs in favor or opposed to prayer in school. Participants who showed strong beliefs for or against prayer in school were contacted again and were asked to participate in the second session of the study. Session two took place between two weeks and two months after the first session.

Participants were not informed that the two parts of the study were related until after they completed the second session.

Participants – Session One

The sample of the first session consisted of 351 young adults (aged 18-30, M = 20.63, SD = 2.06), and 310 older adult participants (aged 60-87, M = 70.54, SD = 6.34). The young adult sample was 48.3% female, and was 70% Caucasian, 13% Asian, and 10% African-American with the remainder of the sample reporting that they were another race. The majority of the young adults in the sample reported completing some college. Young adult participants were recruited from the community as well as from a pool of undergraduate psychology students. Each student received one credit hour toward a course participation requirement and non-students received $10 for their time. The older adult sample was 65% female, and was 69% Caucasian, and 28% African-American with the remainder reporting they were another race. Older adults on average reported completing some college. Older adult participants were recruited from our older adult participant pool and community centers. Each older adult participant received $10 for their time. The young adult sample reported significantly better health (M= 4.20, SD = .76) compared to older adults (M= 3.38, SD = .83) on a 5-point scale, $F(1, 652) = 172.45$, $p < .01$.

Materials: Session One

Demographics Form

Participants filled out a demographics form as required by the National Institute on Aging. This form included information about age, gender, ethnic background and health.

Measure of specific beliefs

The measure of specific beliefs was a 62-item questionnaire consisting of items about several different controversial social issues. The development of this scale was described in the above section outlining the pilot studies. Participants indicated their agreement with statements by circling their response on a 7-item Likert type scale. In addition, participants indicated the extent to which they were familiar with the topic, the importance of the topic, and their personal position on the issue each on 5-point scales. Of particular interest for this study was the 6-item prayer in school scale which had a Cronbach's α = .77 in the pilot sample. Higher scores indicated a more favorable view toward prayer in schools.

Need for Closure Scale

The Need for Closure Scale (Webster and Kruglanski, 1994) assessed differences in need for predictability and structure. This scale consists of 47 items that represent 5 distinct subscales: Order, Predictability, Decisiveness, Ambiguity and Closemindedness. This scale has adequate reliability overall, Cronbach's α = .84 in this sample. Participants indicate their agreement or disagreement with statements using a 6-point Likert scale. Higher scores reflect higher needs for predictability and structure.

Springfield Religiosity Schedule

The Springfield Religiosity Schedule (Koenig, Smiley & Gonzales, 1988) assessed participants' religious beliefs, practices and experiences. This scale consists of 19 items including four subscales to assess different aspects of religion: Rituals, Intrinsic, Faith and Guidance. The overall scale has a very low internal consistency of α = .25 due its composition of four subscales. The subscales reliabilities were adequate, ritual α = .88,

intrinsic α = .81, faith α = .73, and guidance α = .72. Participants responded using both Likert scales and by circling answers that best described them. Higher scores on this scale reflect higher levels of religiosity.

Conservatism-Liberalism Scale

The Conservatism-Liberalism Scale (McClosky & Bann, 1979 in Robinson, Shaver & Wrightsman, 1999) assessed participants' level of conservatism. There are 26 items in the scale, which has an internal consistency of α = .79 in this sample. Participants were asked to read a statement and then check off either the conservative, liberal or neutral alternative that they agreed with. Higher scores on this scale indicate higher levels of conservatism.

Moral Traditionalism Scale

The Moral Traditionalism Scale (Conover & Feldman, 1985 in Robinson, Shaver & Wrightsman, 1999) measured support for traditional moral and social values separately from other aspects of conservatism. This scale has 8 items and participants responded using 5-point Likert scales. The internal consistency was α = .84 in this sample. Higher scores indicate that the respondent holds less traditional views.

Procedure: Session One - Measuring personal beliefs

Older adult participants were contacted by phone to participate in a mail-out study on attitudes. Those who agreed to participate were mailed the battery of beliefs questionnaires along with an instruction sheet explaining the procedure for each scale. Participants were also provided with the lab phone number to contact a lab member if they had any questions. Upon receiving the completed materials back at the lab, participants were mailed a reimbursement check for their time. Young adults from the community participated in the

same way as older adult participants did. Young adult student participants completed the battery of belief measures in our campus laboratory, however they did not receive any additional instructions beyond those provided with the mail-out materials.

On the basis of the scale scores in Session One, participants were called and asked to return for a second session in the lab. Session Two occurred between two weeks and two months after participating in the first session.

Participants: Session Two – In lab

The sample for the second session consisted of 66 young adults and 67 older adult participants. All participants had completed the first session and were found to have a high or low score on our belief measure. Of these participants, 18 participants were omitted from the analyses; six failed to answer the manipulation check correctly, eight had extremely low vocabulary or letter sets scores of less than five correct answers, and four had inconsistent belief ratings across sessions one and two. The analyses were therefore conducted on 64 young adults (aged 18-24, M = 20.20, SD = 1.24) and 51 older adults (aged 60-85, M = 71.01, SD = 6.22). The young adult sample was 51.6% female, and was 78.1% Caucasian, 14.1% Asian, and 3.1% African-American with the remainder of the sample reporting that they were another race. The majority of the young adults in the sample reported completing some college. Participants who were students received an additional one and a half credit hours toward a course participation requirement. Non-student young adults, and older adults received $15 for participating in session two. The older adult sample was 64.7% female, and was 84.3% Caucasian and 15.7% African-American. Older adults on average reported completing some college. The young adult sample reported significantly better health (M=

4.19, SD = .71) compared to older adults (M= 3.44, SD = .86) on a 5-point scale, F (1, 112) = 25.81, p < .01.

The number of participants who participated in each condition are reported in Table D1. Within each age group, t-tests were used to determine whether participants with different beliefs had different levels of cognitive ability, self-reported education and self-reported overall health. Young adults did not show any differences between belief groups, all ps >.05. Older adults did show differences in vocabulary ability, t (49) = 3.21, p < .01, with participants who were not in favor of prayer in schools having higher vocabulary scores (M = 24.36, SE = 1.54) than those who were favorable toward prayer in schools (M = 18.07, SE = 1.25).

Materials: Session Two – In lab

Demographics Form

Participants filled out a short demographics form as required by the National Institute on Aging. This form included information about age, gender, ethnic background and health.

Essays

For reasons described in the piloting section, the key issue for this study was prayer in school. Four arguments in favor of and four arguments opposed to prayer in schools were generated. The essays were constructed following the format of stimuli used in Krull et al. (1999; see Appendix B for the essays).

In session two, half of the participants received an essay that violated their specific beliefs whereas the other half of participants received an essay that was consistent with their

specific beliefs. Participants were all told that the essays were written under no-choice conditions, i.e. the writer was told the position to advocate in the essay.

Essay Questionnaire

The essay questionnaire contained several 7-point rating scales (see Appendix C). Participants were asked to rate the degree to which the writer of the essay was in favor of or opposed to capital punishment and to rate their confidence in making that judgment. Participants were also asked to write an explanation for their ratings on these two scales. Further, as manipulation checks, participants were asked the position that the writer was expected to endorse as well as the actual position that was endorsed in the essay, and the quality of the essay that was read.

Transportation Scale

Participants received a modified version of the 21-item Transportation Scale (Green & Brock, 2000). The original version of this scale assesses the degree to which a person is engaged in a story that they read. The modified version used in the present study rephrased the items minimally, substituting the terms essay task or essay arguments in place of references to story content. Other wording in the scale remained unchanged. The revised scale therefore assesses the degree to which the participant was engaged in the essay task. The internal consistency of this scale is Cronbach $\alpha = .87$ in our sample. Higher scores reflect higher levels of engagement in the task.

Attributional Complexity Scale

The Attributional Complexity Scale (Fletcher, Danilovics, Fernandez, Peterson, & Reeder, 1986) uses 28 7-point Likert type items to assess participants' preference for

complex explanations for behavior. The scale is recoded so that it ranges in value from -3 to + 3 and the score is the sum of the items. The internal consistency of this scale was Cronbach α = .95 in our sample. Higher scores indicate higher preferences for complexity.

Vocabulary Test

The Advanced Vocabulary Test (Ekstrom, French, Harman, & Derman, 1976) measured verbal ability. In this test, participants were asked to circle the one word, from a list of four words, which was closest in meaning to a target vocabulary word. The test has 36 items which increase in difficulty as the participant works through the test. The score was the number of correct responses.

Letter Sets Test

Participants completed the letter sets test (Ekstrom, French, Harman, & Derman, 1976). Participants received a set of five letter sets (e.g. ABCD) and were asked to infer the rule that ties the letter sets together. Participants must eliminate the letter set that deviates from the pattern rule (e.g. JKMN violates the rule that all letters within a set are in alphabetical order). The test has 30 items which vary in difficulty as the participant works through the test. The score was the number of correctly completed sets.

Working Memory

Participants completed the computation span task (Salthouse & Babcock, 1991) to assess working memory capacity. Participants received a series of arithmetic problems that they were required to solve, while at the same time remembering the last digit from each problem. The number of arithmetic problems presented to the participant increased from one to seven, with three trials at each level. After completing each trial the participant is

instructed to recall the target digits. Working memory span is designated as the highest number of target items recalled correctly on at least two of the three trials with that sequence length.

Procedure: Session Two – In lab

A few weeks after participating in session one, participants who qualified by having extreme favorable or unfavorable beliefs were asked to come into the lab to participate in a study on attributional reasoning. Participants were not informed that this session was related to session one that they had previously completed. Participants were given a brief description of the study and filled out a consent form that stated the goals of the research project, but did not mention the exact purpose of the study or the relevance of session one. Participants filled out the demographics form, and then received an essay on prayer in schools that was either congruent or incongruent with their personal beliefs. Participants then completed the essay questionnaire and transportation scale, attributional complexity scale, vocabulary test, letter sets and working memory task. Participants were then fully debriefed as to the purpose of the study and the connection between session one and session two. Before leaving the lab, participants were asked for their consent to link their data from both sessions together and were reimbursed for their time.

CHAPTER 4

RESULTS

The primary goal of the study was to examine the effect that personal beliefs about the target issue had on the attitude-attribution task ratings. However, previous work has shown that ratings of confidence in the attitude attribution paradigm are also an important component of the correspondence bias (Miller et al., 1984). The results here are organized first by examining the proposed hypotheses in attitude attribution ratings as well as in the confidence ratings. Next, the relation between the individual difference measures and the attitude attribution ratings and confidence ratings are explored.

This study used a 2 (age group: young and older adults) by 2 (gender: men and women) by 2 (congruence: congruent and incongruent) by 2 (essay direction: favorable or unfavorable) between-subjects design. Participants who did not correctly recall the writer's instructions were omitted from the following analyses. Preliminary analyses found that gender did not influence attitude ratings therefore the analyses presented below are collapsed across gender.

Manipulation Checks

Participants were selected for session two on the basis of their attitude on prayer in school as indicated by their score for the Prayer Scale in the first session. The Prayer Scale score correlated with participants' own single-item self rating of belief in prayer in school, $r = .80$, $p < .01$.

A manipulation check was also included to confirm that participants correctly viewed the target essays as favorable and unfavorable. A t-test was conducted on participants'

ratings of the essay position comparing the ratings of participants who received a favorable essay and those who received an opposed essay. The opposed essays were perceived to be clearly opposed (M = 1.93, SE = .17) and the favorable essays were clearly viewed as favorable (M = 6.31, SE = .09), t (112) = 21.40, p <.01.

Hypothesis Testing

Hypothesis 1: Age differences in the correspondence bias.

It was expected that this study would replicate previous findings on age-differences in the extremity of the correspondence bias. Older adults were expected to make attitude attribution ratings that were more correspondent with the essay content than young adults. It was also expected that older adults would report higher confidence ratings than young adults.

Hypothesis 2: Personal belief will have an effect on the correspondence bias.

When participant belief is congruent with the essay, participants will be more likely to commit the correspondence bias. Conversely, when specific beliefs are contradicted in the essay, participants are expected to commit the correspondence bias less.

Attitude Attribution Ratings

To examine the correspondence bias the attitude attribution ratings were recoded into extremity scores (as in Follett & Hess, 2002). Participants initially rated the target writer's attitude on a seven-point scale. This measure was rescaled into a four-point extremity scale by calculating the absolute difference from the neutral point on the original scale (i.e., the distance from four). This meant that for the rescaled attitude scale, lower numbers reflect a less biased rating (i.e., closer to neutral) and higher numbers reflect a correspondent rating in the direction of the essay.

A 2 (age: young vs. older) by 2 (congruence: congruent vs. incongruent) ANOVA was conducted on the rescaled rating of the target's attitude. A main effect of age was found, $\underline{F}$ (1, 111) = 24.23, $\underline{p} < .01$, $\eta^2 = .18$, with older adults providing more extreme attitude ratings than young adults. Contrary to the hypothesis, there was no main effect of congruence on the attitude ratings, $\underline{p} > .60$, nor was there an interaction between age and congruence on the attitude ratings, $\underline{p} > .10$. Data is presented in Figure 1.

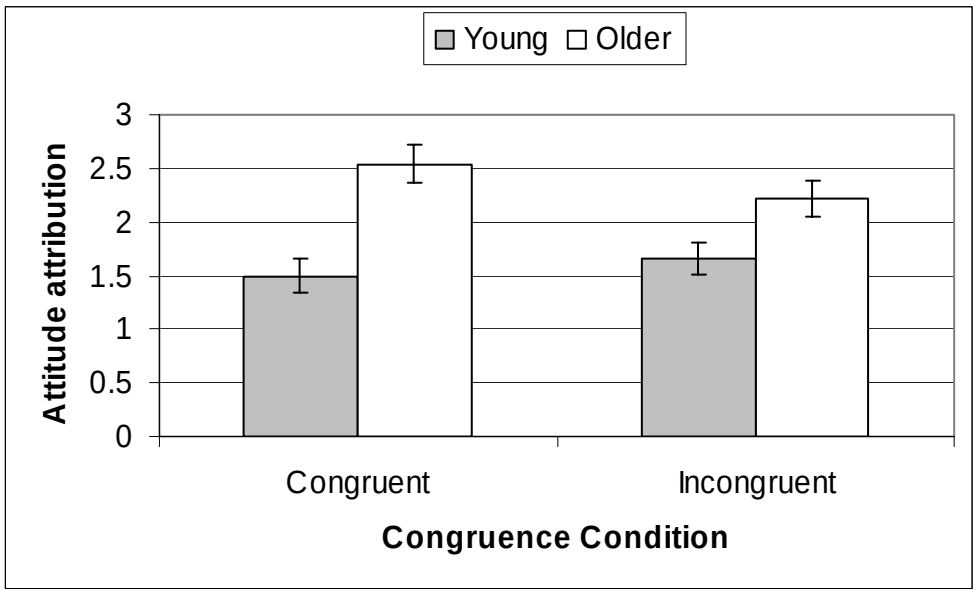

Figure 1. Attitude-Attribution Extremity Ratings for Young and Older Adults by Congruence Condition.

Confidence Ratings

A 2 (age: young vs. older) by 2 (congruence: congruent vs. incongruent) ANOVA was conducted on the confidence ratings. A main effect of age was found, $\underline{F}$ (1, 111) = 11.50, $\underline{p} < .01$, $\eta^2 = .09$, with older adults providing higher confidence ratings than young adults. Contrary to the hypothesis, there was no main effect of congruence on the attitude ratings, $\underline{p}$

>.10, nor was there an interaction between age and congruence on the attitude ratings, p >.50. Data is presented in Figure 2.

Past research has found that young adults showed a congruence effect in confidence ratings (Devine, 1989). Contrasts were therefore conducted in each age group individually to examine the congruence effect within each age group. Congruence did not have an effect on confidence ratings for either young or older adults, both p > .10.

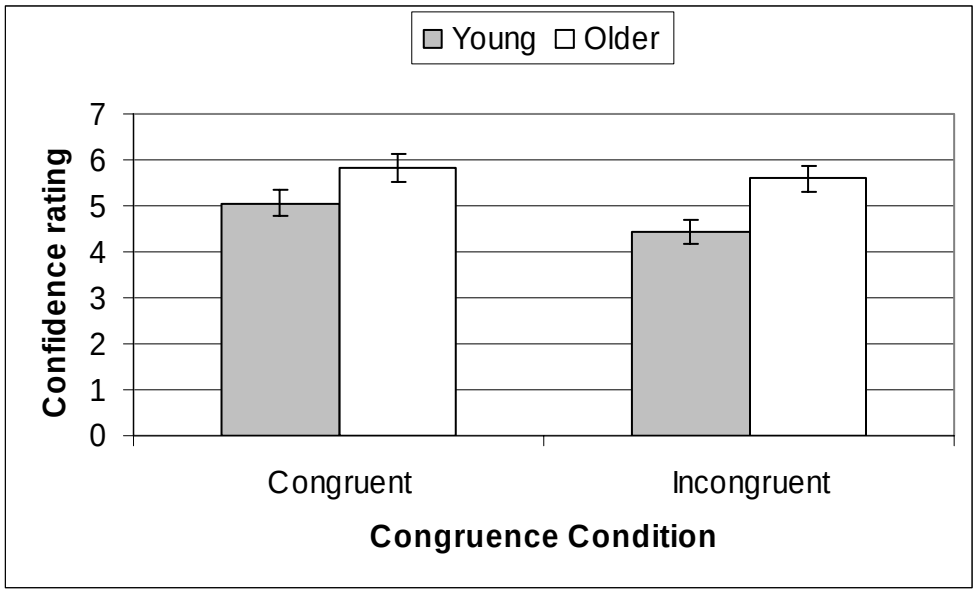

Figure 2. Confidence Ratings for Young and Older Adults by Congruence Condition

Summary

Both the results of the attitude attribution ratings as well as confidence ratings supported the first hypothesis. Replicating previous research, older adults showed a higher correspondence bias than young adults in the attitude attribution ratings as well as in the confidence ratings. The second hypothesis was not supported. Neither the attitude attribution

ratings nor the confidence ratings showed an effect of congruence of personal belief of the participant.

Hypothesis 3: Beliefs will be predictive of the correspondence bias over and above the effect of age.

To address hypothesis three, measures of beliefs were correlated with attitude attribution and confidence ratings. There was no significant correlations between the prayer in school measure and the attitude attribution ratings ($r = .01$, $p > .90$) nor was there a significant correlation between the prayer in school measure and the confidence ratings ($r = -.06$, $p > .50$). Therefore, it was unlikely that the specific belief held would be predictive of these ratings above and beyond age. Attitude attribution ratings were regressed onto age and prayer in school, with age entered in the first step and the prayer in school score entered in the second step. The second step of the regression was significant, $F (2,112) = 11.74$, $p < .01$. Looking specifically at each of the predictors showed that age was a strong predictor of attitude attributions accounting for 17% of the variance, however belief toward prayer in school did not account for any of the variance above and beyond that of age.

Confidence ratings were also regressed onto age and prayer in school, with age entered in the first step and the prayer in school scale score entered in the second step. The second step of the regression was significant, $F (2,112) = 5.79$, $p < .01$. Specifically examining the predictors showed that age accounted for 9% of the variance in the confidence ratings, however beliefs toward prayer in school did not account for any of the variance above and beyond that of age.

Summary

Hypothesis three was not supported. Participants' beliefs about prayer in school did not significantly account for variance over and above age.

Exploratory Hypothesis 1: Participants who believe that prayer should be allowed in schools (i.e. the more traditional view) will be more likely to commit the correspondence bias when their personal belief is contradicted in the essay than would participants with less traditional beliefs when confronted with contradictory beliefs in the essay. When participant belief is consistent with the essay content both groups, traditional and less traditional, will be equally likely to produce dispositional ratings.

Attitude Attribution Ratings

To explore this prediction, participants were divided into those holding favorable and those holding unfavorable beliefs and this factor was included in a 2 (age: young vs. older) by 2 (congruence: congruent vs. incongruent) by 2 (personal position: favorable vs. unfavorable) between subjects ANOVA on the attitude attribution ratings. Only the main effect of age was significant, F (1, 107) = 22.39, $p < .01$, $\eta^2 = .17$. Means are presented in Table D2.

Confidence Ratings

A 2 (age: young vs. older) by 2 (congruence: congruent vs. incongruent) by 2 (personal position: favorable vs. unfavorable) between subjects ANOVA was conducted on the confidence ratings, an age by personal position interaction was found, F (1, 107) = 6.37, $p < .05$, $\eta^2 = .06$, and a personal position by congruence interaction was also found, F (1, 107) = 12.12, $p < .01$, $\eta^2 = .10$. Examining the age by personal position interaction, older adults

did not differ in their confidence ratings, p >.20. Young adults who opposed prayer in school gave higher confidence ratings than did young adults who were favorable toward prayer in school (see Figure 3).

Figure 3. Confidence Ratings for Young and Older Adults by Personal Position

Examining the personal position by congruence interaction, participants who are opposed to prayer in school did not differ in their confidence ratings based on the congruence of the topic in the essay with their personal belief. Individuals who were favorable toward prayer in school were less confident when the essay contradicted their personal beliefs (see Figure 4).

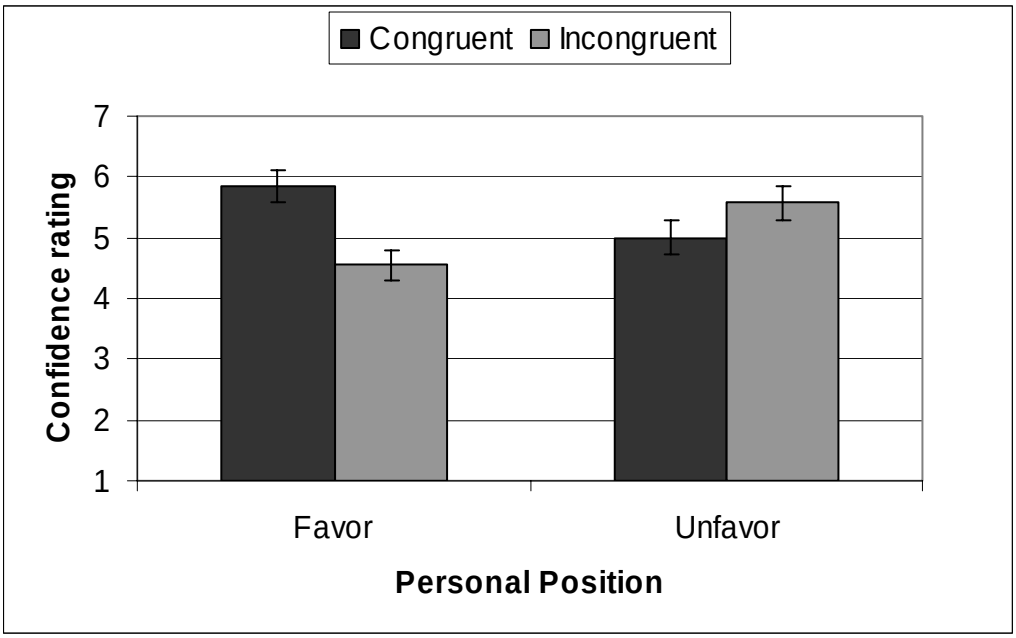

Figure 4. Confidence Ratings for Congruence Condition by Personal Position

Summary

Depending on the direction of the belief held by participants, congruence did make a difference on the confidence rating. However, the finding was inconsistent with the exploratory prediction, based on past work by Blanchard-Fields, that individuals who are more traditional should show more bias even when their belief was contradicted. Participants who were favorable toward prayer in school, the more traditional view, were less confident when their beliefs were contradicted. Older adults did not differ in the extremity of their confidence ratings based on their personal beliefs; however, young adults who were favorable toward prayer in school were less confident than young adults who were opposed to prayer in school.

Exploratory Hypothesis 2: Measures of individual differences in general beliefs, motivation in the attribution task and cognitive measures were included to test their relation

with attribution and confidence ratings. These measures have not been tested before in the correspondence bias paradigm with older adults, therefore there are no directional predictions.

Specific measures of individual differences

A MANOVA was run on the individual differences measures. Multivariate tests were significant for age, as indicated by the F (7, 100) for Wilks' lambda = 9.10, $p < .01$, $\eta^2 = .39$. Multivariate tests were also significant for gender, as indicated by the F (7, 100) for Wilks' lambda = 2.47, $p < .05$, $\eta^2 = .15$. All of the individual difference measures were correlated with each other and with the recoded target attitude rating and confidence ratings in order to examine whether the measure should be used as a covariate. The correlation matrix is presented in Table D3. Each measure is described in more detail below

Need for Closure

Examining the univariate tests for the need for closure scale found an age difference, F (1, 106) = 44.99, $p < .01$, $\eta^2 = .30$, with older adults reporting higher need for closure (M = 187.19, SE = 3.06) than young adults (M = 160.65, SE = 2.51). There were no gender differences in this measure. The correlations in Table D3 show that Need for Closure related to the attitude attribution rating and therefore warranted further examination. NFC was used as a covariate in a 2 (age: young vs. older) X 2 (congruency: congruent vs. incongruent) ANCOVA with attitude attributions as the dependant variable. Need for closure was not a significant covariate, F (1, 109) = .25, $p > .60$, $\eta^2 = .00$ and the age main effect remained significant F (1, 109) = 14.60, $p < .01$, $\eta^2 = .12$.

Springfield Religiosity Scale

The Springfield Religiosity scale has an overall scale score as well as four subscales: ritual, intrinsic, faith and guidance. Univariate tests showed that there were no age differences in the overall scale or in the subscales, ps >.05.

There were no gender differences on the overall Springfield score, however there were gender differences on two of the subscales. On the Ritual subscale, F (1, 106) = 7.11, $p < .01$, $\eta^2 = .06$, females had higher scores (M = 17.09, SE = .87) than males (M= 13.36, SE = 1.08) which indicates that females report a higher attendance at religious services and more self-reported prayer. On the Faith subscale, F (1, 106) = 6.87, $p < .01$, males had higher scores (M = 21.69, SE = .94) than females did (M = 18.51, SE = .77), indicating that males had stronger feelings of importance of faith in everyday life. There were no correlations between the Springfield overall score or subscale scores with attitude attribution ratings or confidence ratings (see Table D3), therefore it was not examined further.

Conservatism-Liberalism Scale

Univariate tests found age differences, F (1, 106) = 6.08, $p < .05$, $\eta^2 = .05$, with older adults reporting higher scores (M = 6.10, SE = 1.38) than young adults (M = 1.71, SE = 1.13). Gender differences were also found, F (1, 106) = 5.64, $p < .05$, with males showing higher scores (M = 6.02, SE = 1.38) than females did (M = 1.79, SE = 1.13). These findings indicate that older adults and males were more strongly conservative than were younger adults and females. There were no correlations between the CLS with attitude attribution ratings or confidence ratings (see Table D3), therefore it was not examined further.

Moral Traditionalism Scale

Univariate tests showed age differences in the MTS, F (1, 106) = 11.94, $p < .01$, η^2 = .10, with young adults reporting higher scores (M = 24.25, SE = 1.03) than older adults (M = 18.62, SE = 1.26) indicating that younger adults hold less traditional views. No effects of gender were found. There were also no correlations between the MTS with attitude attribution ratings or confidence ratings (see Table D3), therefore it was not examined further.

Summary

Age differences were found in all of the individual difference measures except for the Springfield Religiosity Measure. Gender differences were found in the Ritual and Faith subscales of the Springfield Religiosity measure, as well as in the Conservatism-Liberalism scale. Need for closure correlated with the attitude attribution ratings, however it was not a significant covariate and did not influence the age main effect.

Specific measures of motivation

Transportation scale

The Transportation scale was included as a measure of motivation for the attribution task. A 2 (age: young vs. older) X 2 (congruence: congruent vs. incongruent) ANOVA was conducted on the transportation scale scores. A main effect of age was found, F (1, 111) = 4.00, $p < .05$, $\eta^2 = .04$, with older adults reporting higher level of engagement in the task than young adults (see Figure 5). There was a tendency for participants to report higher levels of engagement when the task was congruent with their beliefs than when the task was incongruent however this result was a trend and did not reach significance, F (1, 111) = 3.55,

$p < .07$, $\eta^2 = .03$. There was no interaction between age and congruence in the transportation scale, $p > .50$ (see Figure 5 for data).

Looking specifically at the age groups separately, however, shows that there is a different pattern for young and older adults in the transportation scale scores. Young adults show a difference in transportation scale scores, $F(1, 62) = 4.31$, $p < .05$, with higher scores in the congruent ($M = 85.78$, $SE = 2.95$) than in the incongruent condition ($M = 77.13$, $SE = 2.95$). The amount of motivation in the congruent and incongruent conditions did not differ for older adults, $p > .40$.

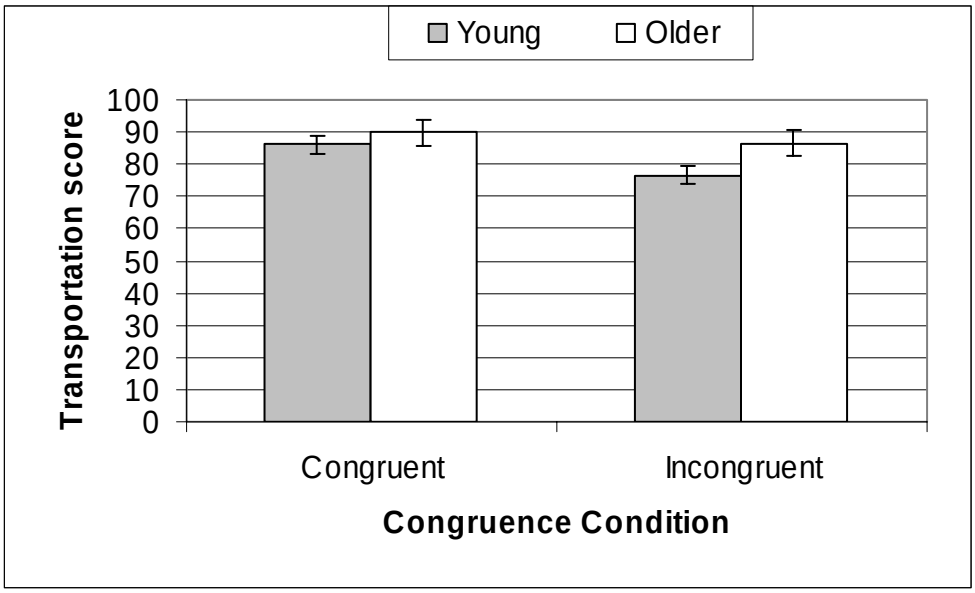

Figure 5. Transportation Scale scores for Young and Older Adults by Congruence Condition

The correlations in Table D3 show that the Transportation scale score related to the attitude attribution rating and therefore warranted further examination. The Transportation scale was used as a covariate in a 2 (age: young vs. older) X 2 (congruency: congruent vs.

incongruent) ANCOVA with attitude attributions as the dependant variable. The Transportation scale was a significant covariate, F (1, 110) = 4.00, $p < .05$, $\eta^2 = .04$ and the age main effect remained significant F (1, 110) = 20.50, $p < .01$, $\eta^2 = .16$. Older adults were more extreme in their attitude ratings (M = 2.35, SE = .12) than were young adults (M = 1.61, SE = .11).

Attributional Complexity

To examine whether attributional complexity made a difference on attributional ratings, as in Devine (1989), a median split was used to divide participants into high and low attributional complexity groups. A 2 (age: young vs. older) X 2 (congruence: congruent vs. incongruent) X 2 (complexity: high vs. low) ANOVA was conducted on both the attribution ratings and the confidence ratings. An age by complexity interaction was found, F (1, 107) = 5.00, $p < .05$, $\eta^2 = .05$. Young and older adults who were high on attributional complexity did not differ in their attribution ratings. The difference was in the low attributional complexity group, $p < .01$; older adult who were low in attributional complexity were more extreme in their attribution ratings than were younger adults who were low in attributional complexity (See Figure 6 for data).

Examining the effect of attributional complexity on the confidence ratings, a 2 (age: young vs. older) X 2 (congruence: congruent vs. incongruent) X 2 (complexity: high vs. low) ANOVA did not find an age by complexity interaction, $p < .20$. However, to mirror the analyses in the attribution ratings, age differences within high and low attributional complexity groups were examined. In the confidence ratings, there were no age differences in the low attributional complexity group, $p > .10$. Within the high attributional complexity

group there was an age difference, $p < .05$, with older adults showing higher confidence than young adults (as shown in Figure 7).

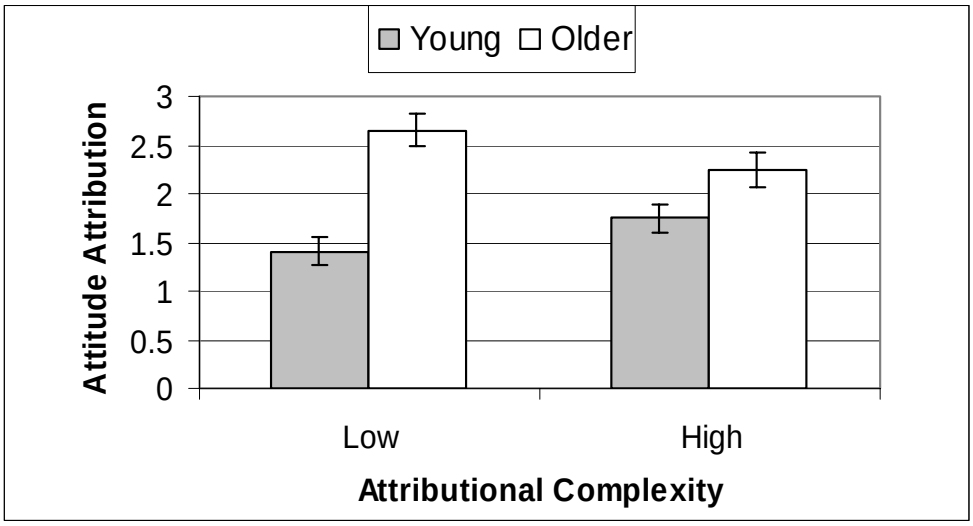

Figure 6. Attitude Attribution Extremity Ratings for Young and Older Adults by Attributional Complexity.

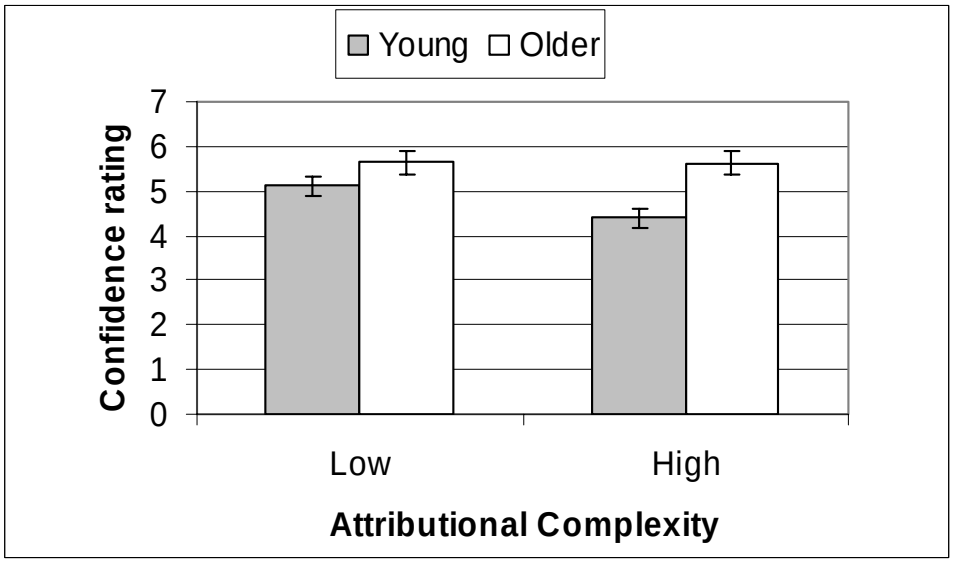

Figure 7. Confidence Ratings for Young and Older Adults by Attributional Complexity.

Summary

Motivational factors appear to play a role in the extremity of correspondence bias ratings. The transportation scale was a significant covariate, however it does not change the patterns of results. Attributional complexity also played a role in the correspondence bias ratings. In the attribution ratings, the differences were found in the low attributional complexity group, where older adults were more extreme in their ratings than young adults. There were no age differences in the high attributional complexity group. In the confidence ratings, the differences were found in the high attributional complexity group, that young adults had lower confidence than older adults; however, among those with low attributional complexity, young adults did not differ from older adults in their level of confidence. The congruence effects that were found by Devine (1989) were not replicated.

Cognitive Abilities

A MANOVA was conducted on the cognitive abilities measures to look for age differences. An overall multivariate effect of age was found, F (3, 107) for Wilks' lambda = 107.44, p <.01. Examining the univariate analyses, an age difference was found in vocabulary scores, F (1, 109) = 8.80, p < .01, η^2 = .08, with older adults having higher vocabulary scores (M = 20.93, SE = .96) than young adults (M = 17.23, SE = .80). Age differences were also found in letter sets scores, F (1, 109) = 162.74, p < .01, η^2 = .60, with young adults having higher letter sets scores (M = 23.24, SE = .53) than older adults (M = 12.79, SE = .63). Age differences were found in computation span scores, F (1, 109) = 156.49, p < .01, η^2 = .59, with young adults having higher scores (M = 4.77, SE = .15) than older adults (M = 1.91, SE = .18).

Examining the correlations in Table D3 shows that letter sets and computation span correlated with attitude attribution ratings and confidence ratings. These two cognitive variables also correlate very highly with age. Each of these variables were used as a covariate in 2 (age: young vs. older) X 2 (congruency: congruent vs. incongruent) ANCOVAs with attitude attributions as the dependent variable. Only letter sets was a significant covariate, $\underline{F}$ (1, 110) = 6.24, $\underline{p} < .05$, $\eta^2 = .05$ and it reduced the age main effect to non-significance, $p>.20$. With letter sets included older adults were equal to young adults in their attitude attribution ratings ($\underline{M}$ = 2.10, $\underline{SE}$ = .17 for older and $\underline{M}$ = 1.81, $\underline{SE}$ = .14 for young respectively). Letter sets was not a significant covariate in the confidence analysis, nor was computation span a significant covariate.

Summary

There is some support for the influence of cognitive mechanisms underlying the correspondence bias. Letter sets was a significant covariate in the attitude attribution analysis, and reduced the effect of age to non-significance. The other measures of cognitive ability that were included in this study did not affect the age differences in attitude attributions or confidence ratings.

Other analyses

Importance of the topic

Participants were asked their opinion about the importance of the issue of prayer in schools. Given that all of the participants in the study had strong beliefs, it was expected that the importance of the topic would be similar across groups. A 2 (age: young vs. older) by 2 (personal position: favorable vs. unfavorable) ANOVA was conducted on the importance

ratings. An age by personal position interaction was found, F (1, 111) = 5.05, $p < .01$, η^2 = .06. Examining the interaction showed that within the favorable group, there was no age difference, $p > .55$. Within the group opposing prayer in school, young adults reported that the issue was less important than did older adults (M = 3.16, SE = 19 for young and M = 4.14, SE = .29 for older respectively), $p < .05$. Importance of the issue correlated with confidence ratings, but only for young adults, Pearson's r = -.265, $p < .05$, therefore it was not explored further.

Quality of the essay

Participants were asked their opinion about the quality of the essay that they read. In previous research, this factor has been examined as a covariate of the differences in attitude attributions between conditions. Quality of essay was found to correlate with both the attitude attribution ratings as well as the confidence ratings, therefore it was entered as a covariate into a 2 (age: young vs. older) by 2 (congruence: congruent vs. incongruent) ANOVA on attitude attribution ratings and confidence ratings separately. Quality of essay was not a significant covariate for the attitude attribution analysis, $p > .70$. This was not the case in the confidence ratings, where essay quality was a significant covariate, F (1, 109) = 8.96, $p < .01$, η^2 = .08. This covariate did not change the patterns of results for age or congruence; age remained significant F (1, 109) = 11.90, $p < .01$, η^2 = .10 and congruence remained non-significant, $p > .20$.

Summary

Age differences were found in participant ratings of the importance of the topic of prayer in school, however this only related to confidence ratings for young adults. Although

previous research has found that quality of essay can have an influence on the correspondence bias, the present findings suggest that the influence is primarily on confidence ratings. Quality of essay is a significant covariate, however it did not have an affect on the overall pattern of results.

CHAPTER 5

DISCUSSION

Past research on causal attributions has demonstrated that older adults tend to make dispositional inferences despite the presence of situational factors that could have equally contributed to the outcome (Blanchard-Fields & Beatty, in press; Blanchard-Fields et al., 1998; Chen & Blanchard-Fields, 1997). The present study replicated this past finding and demonstrated that older adults make more extreme dispositional attitude attributions than do young adults. Older adults also showed greater levels of confidence in their judgments than young adults, a finding that also replicates past research.

The primary goal of this study was to examine the role that one's personal beliefs play in making attributions about others, however this study failed to show strong support for this idea. This study found that both older and young adults tended to rate the attitudes of others to be consistent with a position presented by the target, regardless of whether this attitude was consistent or inconsistent with their own personal beliefs.

A slightly different pattern was found when looking at participant ratings of confidence in their attitude judgments. Some research in the social psychology literature suggests that confidence ratings are an alternative way at assessing attributional processing (Devine, 1989; Miller, Schmidt, Meyer & Colella, 1984). Measures of confidence in the attitude rating are thought to be a more sensitive measure of the strength of the subjects' belief in the attribution. It has been suggested that participants may be less likely to use the middle point of the scale in the attitude attribution paradigm because of demand characteristics, i.e. the center of the scale may reflect an inability to perform the judgment

task. Confidence ratings are a way to measure uncertainty in the judgment and may have fewer self-presentational demands (Miller et al., 1984). In our sample, the confidence and attitude attribution ratings were significantly correlated, $r = .40$, $p < .01$, suggesting that they are measuring similar constructs, but not identical constructs.

Examining the confidence ratings showed that for older adults, strong personal beliefs about prayer in school had a minimal influence on the confidence ratings. Older adults' confidence was consistently high regardless of their personal position on prayer in school. For young adults, the ratings of confidence showed an effect of the direction of their personal belief. Young adults who were favorable toward prayer in school gave lower confidence ratings than did young adults who were opposed to prayer in school.

Confidence ratings also showed differences between participants who were favorable and unfavorable towards prayer in school depending on whether the target position was congruent or incongruent with their own personal beliefs. Individuals who were opposed to prayer in school did not show a congruence effect on their confidence scores. In contrast, individuals who were favorable towards prayer in schools were less confident in their attribution rating when they were presented with an essay incongruent to their beliefs.

It is possible that, as argued by Devine (1989), in the incongruent condition participants were more motivated to think about the situational constraint when their personal belief was contradicted by the target. Devine did not directly measure motivation in her study; motivation was inferred as an explanation of her pattern of results in the confidence ratings. Devine's work also differed from the present study in that she examined attitude attributions when a target essay violated popularly held beliefs. In the present study, we examined personally relevant beliefs rather than those that were popular in general. In

addition, we looked at motivation using a measure of engagement in the task, the Transportation Scale. Motivation as we defined it in this study, i.e., task engagement, did not operate according to Devine's conceptualization of how motivation should operate in the attitude attribution paradigm. Older adults did not show a difference in engagement in the task when the target essay was consistent or inconsistent with the participant's personal belief. Also inconsistent with Devine's hypothesis, young adults showed less engagement in the task in the incongruent condition. Examining the means showed that young adults who were unfavorable towards prayer in school showed the lowest amount of engagement in the task when their beliefs were contradicted in the essay. Therefore, it appears that motivation operates differently when the task reflects the fact that one's personal beliefs are violated than when the task reflects a popular belief being violated. In young adults, the lower confidence ratings may reflect something different. Rather than increasing motivation to process the information more carefully and notice the situational constraint on the individual, violating one's personal beliefs may trigger a more emotional type of reaction, i.e. if it is difficult to believe that someone would advocate against prayer in school then one may have lower confidence in their attitude attribution. However, this explanation is speculative and is not addressed in this study; further empirical study is necessary to address it.

This study also extended previous work by Blanchard-Fields and colleagues by showing differential effects of attributional complexity on the attitude and confidence ratings made by young and older adults. In the attitude attribution ratings, young and older adults who were high on attributional complexity did not differ in their ratings, however older adults who were low in attributional complexity gave more extreme ratings than did young adults who were low in attributional complexity. The confidence ratings showed a slightly

different pattern, individuals who were low on attributional complexity did not differ in their level of confidence; however, young adults who were high on attributional complexity were lower in their confidence than were older adults who were also high on attributional complexity.

Personal Beliefs and Attitude Attributions

The findings of this study suggest that personal beliefs on an issue do not have a strong impact on an individual's judgment of others' attitudes. This is consistent with some of the past research in social psychology (e.g., Choi & Nisbett, 1998), however it is surprising given that the present study was designed to avoid the limitations of previous research. In the past research that has failed to find an effect of personal belief, beliefs were measured with single-item scales immediately after the attitude-attribution task (e.g. Choi & Nisbett, 1998; Webster, 1993). It was therefore possible that the previous studies had not adequately measured the complexity of the beliefs involved and therefore could not detect differences based on beliefs. It was also thought that a self-report measure following the attribution task could influence the ratings that people make, increasing or decreasing the ratings in a reaction to the task (e.g. Jones & Harris, 1967; Lord et al., 1997). The present study addressed these issues by creating a multi-dimensional personal belief scale to assess personal beliefs toward prayer in school in a more complex way. Second, the present study presented the beliefs measures in advance of the attitude attribution session which was framed as an unrelated study. This was done to minimize the possibility of reactive effects or demand characteristics.

Given these considerations in the design of the present study, why did this study not find differences in attributions based on personal beliefs? The first suggestion for why

beliefs do not appear to matter is the sensitivity of the measure of beliefs being used. The measure of personal beliefs was a 6-item scale that was designed to encompass several dimensions of the prayer in school debate. While it had reasonable internal reliability, it was not validated on a large normative sample and therefore may not have measured the construct as effectively as had been planned. This measure was highly related to the self-reported measure of favor toward prayer in school and while it was not perfectly correlated, it may not have encompassed the complexity of the issue as well as was intended. This criticism does not explain why some of the other measures, such as the Springfield Religiosity Scale, a widely used measure that has been validated in large samples, would not have been predictive of attitude attributions related to prayer in public schools.

Although this study was designed with the goal of reducing the reactive effects of the attributional task on the ratings of personal belief, this is a second potential limitation of the scale. By embedding the prayer in school measure within a larger scale that included issues such as gun control, capital punishment and abortion it is possible that individuals responses were more or less extreme than they would have been on a prayer in school measure alone. When brought back for the attribution task, these issues may not have been as provoking and therefore did not relate strongly to the attribution ratings.

It is also possible that there was an issue with statistical power. Statistical power is the probability of finding that the null hypothesis is incorrect, and is in part based on the sample size and the variability of the sample (Hays, 1991). This study examined a phenomenon with a small effect size and the likelihood of finding the effect may have been reduced due to the small sample size that was used. It was very difficult to recruit older adult participants who were unfavorable toward prayer in schools, therefore the number of

participants in those cells were lower compared to the number of participants in the other conditions. Also, the use of an extreme beliefs design restricted the range of scores in the beliefs measures. In combination, it is possible that this study simply did not have the statistical power to detect the small effects that personal beliefs may have on judgments of attitudes and confidence. This study was intended to be a first step in a program of research. It would be interesting to see if adding more variability to the sample would improve the ability to detect belief based differences.

Beliefs and Confidence ratings

In examining the results that were found, it was apparent that the majority of the effects were found in the confidence ratings. It has been argued in several places that confidence ratings are an important component of correspondence bias (Devine, 1989; Jones & Davis, 1965; Miller et al., 1984). Confidence ratings may be a better reflection of the correspondence bias because the rating of uncertainty is less susceptible to demand characteristics than is the attitude attribution rating (Devine, 1989). The present study found that the confidence ratings were more sensitive to showing differences related to the personal beliefs of the participants. It is interesting to note that older adults have higher overall confidence than younger adults. A question to ask is whether this increase in confidence is an age-related phenomenon or whether it is a reflection of a scaling issue.

Several studies have found that older adults show higher levels of confidence than young adults (Blanchard-Fields & Horhota, submitted; Mienaltowski, 2004). It is possible that this is an artifact of a different use of the scales. In looking at the patterns of means for confidence and beliefs, older adults and younger adults look similar. Participants who opposed prayer in school did not differ in their confidence ratings; all ratings were

consistently high regardless of whether or not the target was congruent or incongruent with one's personal beliefs. A different result was found in participants who were favorable toward prayer in schools. These individuals showed higher ratings of confidence in the congruent condition than in the incongruent condition. Examining the means shows that while the pattern is the same, the older adult confidence values were located at the upper end of the scale, whereas younger adults were using the mid-range of the confidence scale.

In examining the prayer scale scores, in the pilot sample for the scale young and older adults appeared to be using the scale similarly and therefore the same cut off points were used to select young and older adults with extreme beliefs. In the data from the second session, however, there was a difference in the extremity of the prayer scores, in that older adults showed a lower mean score in the unfavorable condition, indicating that they were using the lower ends of the prayer scale score as well. While these instances are suggestive of a tendency to use the scales differently, this study did not systematically address this issue.

It is also possible that older adults simply become more confident in their opinions with age. It has been argued in the literature that older adults become more schematic and more rigid in their beliefs with age (Hess, 2001). Older adults may have had their beliefs challenged more than young adults throughout the course of experiences with others over their lifetime. If experience leads to a stronger and more complex understanding of the beliefs and values one holds, then older adults may be more schematic as a group and hold their beliefs more strongly than young adults. Indeed, some studies show that age differences in schematic beliefs predict dispositional attributions (Blanchard-Fields and Hertzog, 2002).

Although we selected on the basis of extreme beliefs in an attempt to control for strength of belief, it is possible that the self-reports made by young and older adults are

similar in scale value but are valued in fundamentally different ways. In fact, looking at participants' ratings of importance of the topic showed differences despite the fact that all participants displayed strong opinions on the subject. Individuals who were favorable towards prayer in school indicated that the issue was more important to them than did people who were opposed to prayer in school. However, within the opposed group there was an age difference; older adults felt the issue was more important than did young adults. If older and young adults report holding strong beliefs, but older adults feel that the issue is more important, older adults may be more schematic for the issue. Highly schematic individuals may rely on those beliefs to inform their judgments and subsequently may feel more confident in their decisions. The current study does not address this hypothesis specifically and it may be an interesting avenue for future research.

The role of attributional complexity and motivation

Another interesting finding from the present research is the influence of attributional complexity on attitude attributions and confidence ratings. Unlike past research by Devine (1989), young adults who differed in attributional complexity did not show an effect of congruence on their confidence ratings. However, attributional complexity was related to finding age differences in the attribution and confidence ratings. Older adults who have high levels of attributional complexity report attitude attribution ratings that are equivalent to those reported by young adults. Older adults who are lower in attributional complexity made more extreme attitude attribution ratings than young adults yet were equally confident in their ratings.

These findings are consistent with those of Follett and Hess (2002) who showed that individuals who tend to look for complex reasons for behavior showed lower attitude

attribution ratings. It is presumed that those individuals who look for complex reasons for behavior are more likely to take into account the situational pressure as well as the dispositional factors when making their judgments of uncertainty in the confidence ratings. Past research has shown that mean levels of attributional complexity are similar across age groups (Follett & Hess, 2002). Thus, attributional complexity acts as an individual difference measure that related to the degree to which individuals commit the correspondence bias, regardless of age. The finding that attributional complexity eliminated the age differences in attitude ratings in the high complexity group attests to this. While these findings support the notion that attributional complexity plays a key role in the correspondence bias (e.g. Follett & Hess, 2002), they do not support past work that the effect of attributional complexity changes with respect to the personal beliefs about the issue that one holds (Devine, 1989).

Past work has argued that motivation plays a role in attitude attribution paradigms (Devine, 1989). This study measured motivation as engagement in the task using the Transportation Scale (Green & Brock, 2000). Motivation related to attribution ratings, however not in the direction that has been found in the past research (Devine, 1989). In the present study, the more motivated a participant was in the task, the more extreme their attitude attribution ratings were, however motivation did not explain age differences in the attribution ratings. In Devine's work, she argued that in incongruent conditions participants were motivated to think about the situational constraints on the target individual. However, it is possible that the motivation in this task was more emotional than rational. When a person's beliefs were violated it may have led to engagement in the task in the form of an emotional reaction as to why the target was wrong in their own beliefs. When asked later to

indicate the beliefs the target held participants then rated the beliefs in the direction of the essay, neglecting the role of the constraints. Several of the items in the transportation scale relate to emotional engagement in the task, e.g. "The essay affected me emotionally". The current sample is not large enough to run a factor analysis to determine the underlying structure of the transportation scale, thus it is only speculation that these emotional items are more relevant to ratings in the attitude attribution paradigm.

There is a large body of research in the aging literature looking at the differences in motivational goals in older adults (Isaacowitz, Charles, & Carstensen, 2000), however few studies of attributional processes have included motivation as a measure (e.g. Hess, Rosenberg, & Waters, 2001). Future research on causal attributions should examine not only motivation in general, but the specific nature of the motivation underlying a task. Different types of underlying motivation may lead to different patterns of attributional processing; it would be interesting to understand more fully how motivations with an emotional component impact behavior differently than more rational motives.

The role of cognitive mechanisms

Finally, although the focus of this study was on a social mechanism underlying attributional processing, it was a cognitive measure that accounted for age differences in attitude attribution ratings. The letter sets task, a measure of fluid ability, accounted for the attitude attribution ratings and reduced the effect of age to non-significance. The two other cognitive measures that were included in this study, vocabulary and working memory as measured by computation span, did not account for the influence of age. Based on past research that has found context-specificity in the attributional biases of older adults it has been argued elsewhere that cognitive measures cannot be the only mechanism underlying

these biases. The present study suggests that fluid reasoning ability has some relation to attributional processing but it is far from definitive and future research is necessary in this area.

Conclusion

Overall, the present study contributes to our understanding of conditions under which dispositional biases are found in older adults. The personal beliefs that we hold are only one part of how people reason about the attitudes of others. Although extreme beliefs do not show strong relationships with attitude attributions, it is possible that strength of beliefs matter, in that those who have extreme beliefs will react differently than those who have more moderate views. This study also suggests that confidence is an important measure to consider in attitude attributional research. Although confidence is correlated with attitude attribution ratings, confidence appears to behave differently and reflect changes that are not apparent in the attitude attribution ratings.

In exploring the possible mechanisms related to the correspondence bias, both motivation toward the task and fluid reasoning were found to have some influence on the ratings of young and older adults. Attributional complexity also appears to be related to age-differences in attitude attribution ratings and confidence. Future research is necessary to more fully understand the way in which cognitive and social mechanisms interact when individuals make social judgments.

APPENDIX A

Beliefs toward Prayer in School Scale

1. Students taking part in assemblies or graduation ceremonies should not be restricted in expressing their religious views, provided that they were chosen to speak through neutral criteria.

2. Teachers should not be allowed to openly pray during breaks if it is not clear they are doing it outside of their official roles. (reverse)

3. Public school facilities should be made available after school hours for use by student or teacher-led religious groups.

4. Teachers in the public school system should not be allowed to attempt to shape children's religious views. (reverse)

5. Moments of silence and prayer should not be allowed in public schools. (reverse)

6. Teachers should be allowed to pray with students in public schools.

APPENDIX B

Target Essay: Favorable toward prayer in school

Prayer should be encouraged in public schools. There are many reasons for having this position. For example, students should not be restricted in expressing their religious views in student assemblies or events because they have the right to religious expression. It is also a good idea to allow prayer in school because school should be a place that teaches children good moral values; prayer in school would provide that guidance. Some people argue that prayer in schools forces a belief in God on students but if the student doesn't believe in a God, then someone else praying to God should have no effect on them. And further, there is no proof that having prayer in a public school would be problematic because it's not like prayer has ever harmed a student. Finally, prayer in public schools would be a good thing because encouraging the expression of religious beliefs in school helps teach tolerance and understanding to our youth. Clearly, there are many good reasons for encouraging prayer in public schools.

Target Essay: Unfavorable toward prayer in school

Prayer should not be encouraged in public schools. There are many reasons for having this position. For example, moments of prayer in student assemblies should not be allowed because they cannot reflect the beliefs of all religious groups represented in the student body. It is also a bad idea to allow prayer because a public school is a non-religious institution; schools should not be a seen as a place for prayer because there needs to be a separation between church and state. Some people argue that prayer is important to teach youth morals, however banning prayer does not lead to moral decline – social problems are due to other factors such as poverty and discrimination. And further, teachers should not be allowed to express their religious beliefs in public school because students may feel forced to agree with the position of the teacher. Finally, having prayer in public schools divides children into a group that prays, and a group who does not pray and this can lead to divisions between children who may otherwise become friends. Clearly, there are many good reasons for not encouraging prayer in public schools.

APPENDIX C

ESSAY QUESTIONNAIRE

Please read the following statements and respond on the scale below the statement. Mark your response by circling a number on the scale. There are no right or wrong answers. We are only interested in your opinions.

1. Please rate the degree to which **the writer** of this essay is in favor of or opposed to prayer in schools.

1 ------ 2 ------ 3 ------ 4 ------ 5 ------ 6 ------ 7
Very much opposed — Neutral — Very much in favor

2. How confident are you about the above rating?

1 ------ 2 ------ 3 ------ 4 ------ 5 ------ 6 ------ 7
Not at all certain — Somewhat certain — Extremely certain

3. Please provide us with an explanation of the ratings you made above.

a) What factors did you take into consideration when rating the degree to which the writer of the essay is in favor of or opposed to prayer in schools?

_____
_____
_____
_____

b) What factors did you take into consideration when rating your level of confidence?

_____
_____
_____
_____

4. Please indicate the degree to which **you** are in favor of or opposed to prayer in schools.

1 ------ 2 ------ 3 ------ 4 ------ 5 ------ 6 ------ 7
Very much opposed — Neutral — Very much in favor

5. Please estimate the degree to which the average person is in favor of or opposed to prayer in schools.

1 ------ 2 ------ 3 ------ 4 ------ 5 ------ 6 ------ 7
Very much opposed — Neutral — Very much in favor

6. Please indicate the position that the writer was expected to write the essay about.

    1. In favor of prayer in schools
    2. Opposed to prayer in schools

7. Please indicate the extent to which the essay endorsed prayer in schools.

1 ------ 2 ------ 3 ------ 4 ------ 5 ------ 6 ------ 7
Very much opposed — Neutral — Very much in favor

8. If you were to write an essay supporting (or opposing) prayer in schools in the same situation as the author, what would the quality of your essay be compared to the essay you just read?

1 ------ 2 ------ 3 ------ 4 ------ 5 ------ 6 ------ 7
Much Worse — Equally Good — Much Better

APPENDIX D

TABLES

Table D1: Participants per condition

	Young Adults	Older Adults
Favorable Belief		
Congruent	15	13
Incongruent	17	16
Unfavorable Belief		
Congruent	17	11
Incongruent	15	11

Table D2: Means and Standard Errors for Attitude Attribution Ratings by Age Group

Congruence Condition	Young Adults		Older Adults	
	M	SE	M	SE
Congruent	1.50_a	.15	2.54_b	.18
Incongruent	1.66_a	.15	2.22_b	.17

Table D3: Correlations between Age, Individual Difference and Cognitive Measures

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Age	1.00	.40**	.29**	.52**	.16	-.25**	-.04	.17	-.14	-.20*	.02	.19*	.07	.29**	-.79**	-.78**
2. Attitude Rating		1.00	.40**	.26**	-.05	-.04	.06	.11	-.08	-.02	.04	.24*	.01	-.04	-.46**	-.36**
3. Confidence			1.00	.17	.02	.00	.06	.01	.02	.020	.06	.09	-.14	.03	-.24**	-.20*
4. NFC				1.00	.48**	-.41**	-.11	.16	-.21*	-.16	-.08	.10	-.18	-.03	-.45**	-.46**
5. CLS					1.00	-.31**	-.06	.06	-.10	-.04	-.07	.04	-.27**	.16	.02	-.06
6. MTS						1.00	.47**	-.69**	.68**	.63**	.67**	-.15	.13	.14	.31**	.31**
7. Religiosity overall							1.00	-.39**	.75**	.79**	.85**	-.12	-.10	.14	.10	.21*
8. Ritual								1.00	-.75**	-.80**	-.75**	.33**	.03	-.18	-.24**	-.25**
9. Intrinsic									1.00	.73**	.75**	-.20*	-.06	.31**	.24**	.25**
10. Faith										1.00	.83**	-.27**	-.09	.12	.23*	.33**
11. Guidance											1.00	-.21*	-.08	.12	.10	.17
12. Transport												1.00	-.35**	.04	-.08	-.21*
13. Attributional Complexity													1.00	.14	-.07	-.12
14. Vocabulary														1.00	-.05	-.13
15. Letter Sets															1.00	.69**
16. Comp. Span																1.00

** indicates p<.01, * indicates p<.05

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